Standard Operating Procedure Interim Change Notice (ICN)

Effective Date: **5/27/04**

1 Page(s)

Section 1: Description of Change (Requester completes)		1. Document Catalog No.: **ER2004-0030**
2. SOP & Rev. No.: **01.03, 3**	3. ICN No.: **1**	4. SOP Title: **Handling, Packaging, and Transporting Field Samples**

5. Description of Change:

•Attachment B, Paragraph B.3.1 change to read "Samples shall be transported to the SMO using a government or subcontractor leased/rental vehicles. It is not permissible to transport samples to the SMO or radiation screening laboratory using privately owned (personal) vehicles. If any vehicle is involved in an off-normal incident causing the release of sampling materials into the vehicle, the transporting organization is responsible for vehicle cleaning and monitoring to allow for its "free release" prior to returning the vehicle to normal service.

6. Attachments Modified, Added, or Removed: ☐ Yes ☒ No

7. ICN Justification:

•Allow flexibility of sample transport to the SMO in government or subcontractor leased/rental vehicles.

8. Requester: Keith Greene [Signature on File] 05/24/2004
(Print name, then sign.) (Date)

Section 2: Evaluation and Approval (Project Team Leader, Technical Reviewer, and Quality Program Project Leader complete.)

9. Evaluation Remarks: (If none, enter N/A)
N/A

10. Project Team Leader: Becky J. Coel-Roback [Signature on File] 05/25/2004
(Print name, then sign.) (Date)

11. Technical Reviewer: Perry Dwain Farley [Signature on File] 05/25/2004
(Print name, then sign.) (Date)

11. QPPL: Phillip Noll [Signature on File] 05/25/2004
(Print name, then sign.) (Date)

Using a token card, click here to record "self-study" training to this procedure.
If you do not possess a token card or encounter problems, contact the RRES-ECR training specialist.

Standard Operating Procedure Interim Change Notice (ICN)

Effective Date: **04/03/03**

1 Page(s)

Section 1: Description of Change (Requester completes)		1. Document Catalog No.: **ER2003-0219**
2. SOP & Rev. No.: **01.03, R2**	3. ICN No.: **2**	4. SOP Title: **Handling, Packaging, and Shipping of Samples**

5. Description of Change:

8.0 RECORDS
Change "Project Leader" to "PTL," i.e., Project Team Leader.

Delete Sections 8.1 and 8.3. [The PTL transmits only 8.2, Completed Field Log Notebook or Daily Activity Logs, to the RPF; the SMO transmits 8.1 and 8.3, according to SOP-01.04, R5, section 10.3--thus the deletion.]

6. Attachments Modified, Added, or Removed: ☐ Yes ☒ No

7. ICN Justification:

Reflects process improvement.

8. Requester: Steve Bolivar
(Print name, then sign.) (Date)

Section 2: Evaluation and Approval (Project Team Leader, Technical Reviewer, and Quality Program Project Leader complete.)

9. Evaluation Remarks: (If none, enter N/A)
N/A

10. Project Team Leader: Steve Bolivar [Signature on file.]
(Print name, then sign.) (Date)

11. Technical Reviewer: E. Jeanne Hamilton [Signature on file.]
(Print name, then sign.) (Date)

11. QPPL: Larry Maassen [Signature on file.]
(Print name, then sign.) (Date)

Identifier:	Revision:	Effective Date:
ER-SOP-1.03	**2**	**12/4/2000**
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environmental restoration project

A Department of Energy
Environmental Cleanup Program

Environmental Restoration Project
Standard Operating Procedure

for:

HANDLING, PACKAGING, AND TRANSPORTING FIELD SAMPLES

Los Alamos
NATIONAL LABORATORY
Los Alamos, New Mexico 87545

Handling, Packaging and Transporting Field Samples

Table of Contents

Handling, Packaging and Transporting Field Samples

NOTE: Environmental Restoration (ER) Project personnel may produce paper copies of this procedure printed from the controlled-document electronic file located at http://erinternal.lanl.gov/documents/Procedures/sops.htm. However, it is their responsibility to ensure that they are trained to and utilizing the current version of this procedure. The Quality Program Project Leader (QPPL) may be contacted if text is unclear.

1.0 PURPOSE

This SOP directs field team members in the preparation of environmental and waste characterization samples for transportation to the Sample Management Office (SMO) or an SMO-approved radiation screening laboratory. If samples are known to be DOT regulated, including radioactive samples, the field team members must contact BUS-4 (667-4127) who will package and ship the samples. Appendix D provides information and further reference about DOT classifications.

2.0 TRAINING

2.1 The **Field Team Leader** (FTL) is responsible for ensuring that field team members who handle, package and transport field samples for the ER Project are familiar with the objectives of and are properly trained in the procedures controlling these activities.

2.2 All users of this SOP are trained by self-study. Personnel should document their training in accordance with QP-2.2. The Field Team Leader (FTL) will monitor the proper implementation of this procedure and ensure that relevant team members have completed and documented all applicable training.

3.0 DEFINITIONS

3.1 *Environmental samples* — Air, soil, water, or other media samples that are collected from surface waters, wells, soils, or other locations and are not expected to exhibit properties classified by DOT as hazardous.

3.2 *DOT-Regulated samples* — Samples of on-site air particulates, soil, or water and materials collected at waste sites that are known or thought to meet the definition of a hazardous material as defined in 49 CFR 171.8. In this procedure “hazardous” does not refer to Resource Conservation Recovery Act (RCRA) hazardous wastes unless so stated.

3.3 *ORM-D material* — Other Regulated Material (ORM such as a consumer commodity, which, although otherwise subject to the regulations of

Subchapter C of 49 CFR 100, presents a limited hazard during transportation due to the form, quantity, and packaging. It must be a material for which exceptions are provided in 49 CFR 172.101.

3.4 *Radioactive material* — Any material having a specific activity greater than 70 Bq/g (2 nCi/g) per unit mass of the material and in which the radionuclide is evenly distributed.

3.5 *Site-Specific Health and Safety Plan (SSHASP)* — A health and safety plan that is specific to a site or ER-related field activity that has been approved by an ER health and safety representative. This document contains information specific to the project including scope of work, relevant history, descriptions of hazards by activity associated with the project site(s), and techniques for exposure mitigation (e.g., personal protective equipment [PPE]) and hazard mitigation.

4.0 BACKGROUND AND PRECAUTIONS

Note: This SOP is to be used in conjunction with an approved SSHASP and/or an approved Radiological Work Permit (RWP). Also, consult the SSHASP and/or RWP for information on and use of all PPE.

4.1 In general, samples taken for the ER Project are expected to have a low concentration of potential contaminants, although higher concentrations will be present in some cases. These low-concentration samples that do not satisfy the DOT hazard-class definitions are classified as environmental samples and are not subject to DOT regulations. Historical data, knowledge-of-process, and field screening results will assist the team members in making decisions as to whether a sample can be designated as "environmental" or needs to be treated as a DOT-regulated material.

4.2 The **FTL** should coordinate sampling activities with the Centralized Data Management (CDM) coordinator in order to obtain appropriate sample documentation paperwork (e.g., sample collection logs, chain-of-custodies, sample labels). The **FTL** will provide CDM all required information needed to generate sample collections logs, sample labels, and chain-of-custody forms using a CDM-generated request form, and the **CDM Coordinator** will generate the paperwork for the field team.

4.3 **SMO staff** is responsible for scheduling chemical analyses in cooperation with participating commercial analytical laboratories. Field personnel must schedule all chemical analyses through the SMO.

4.4 All samples must be handled according to applicable LANL-ER Standard Operating Procedures (SOP), and any applicable regulations for DOT-regulated samples. While transporting samples, sample integrity (samples must be locked and/or under constant supervision, and protected from

tampering) and chain-of-custody must be maintained. Refer to LANL-ER-SOP 1.04 for guidance on protecting sample chain-of-custody. The health and safety of personnel and the environment must be protected from detrimental effects of hazardous materials if the samples are hazardous materials.

4.5 Environmental samples collected for analysis are transported to the SMO, or to an SMO-approved radiation screening laboratory. A **sample custodian** will check each sample for proper container, preservatives, and labels and verify that the information is accurately reflected on the chain-of-custody. If the **custodian** notes any discrepancies in these areas the samples will remain in the custody of the **field team member** until the sample documentation is corrected. Samples will then be relinquished to the **custodian** who will package and ship the samples to the designated analytical laboratories. DOT-regulated samples are transported in accordance with BUS-4 (667-4127) requirements. The **field team member** must coordinate with BUS-4 for shipping of DOT-regulated samples.

5.0 EQUIPMENT

A checklist of suggested equipment and supplies needed to implement this procedure is provided in Attachment A.

6.0 PROCEDURE

Note: Deviations from SOPs are made in accordance with QP-4.2.

6.1 Transportation of Samples

The field team member will classify the samples collected at a site as either environmental (non-DOT-regulated) or DOT-regulated (including radioactive) samples according to the DOT requirements. Preliminary classification must be made in the field to ensure that the samples are transported on public-access roads safely and according to regulations. Use Sections 6.2 and 6.3 of this SOP as guides to characterize sample types and the applicable packaging requirements for the samples. Attachment D provides additional regulatory reference information for the sampling team.

6.1.1 The **field team member** will preserve and package samples being collected in accordance with Environmental Protection Agency (EPA) requirements. Refer to ER-SOP-1.02 for guidance.

6.1.2 In accordance with ER-SOP-1.04, the **field team member** will seal and label samples before packing. The **field team member** will ensure that the sample containers and the containers used for transport exhibit no external contamination. If contamination is

suspected or found, the **field team member** will decontaminate in accordance with ER-SOP-1.08.

6.1.3 The **field team member** will package all samples so as to minimize the possibility of breakage during transportation. For all liquid samples, containers can be placed in resealable plastic bags or bubble-wrap, or sufficient absorbent material can be placed inside the transport container. Seal with custody tape or lock the transportation package so that any tampering can be readily detected.

6.1.4 For the transport of DOT-regulated samples, the **field team member** must contact BUS-4 (667-4127) who will ship the samples in accordance with BUS-4 requirements. **BUS-4** will package, label, and ship the DOT-regulated samples to the analytical laboratory in accordance with DOT regulations.

6.1.5 After all environmental samples are collected, packaged, and preserved, a **field team member** will transport them to either the SMO or an SMO-approved radiation screening laboratory under chain-of-custody. After the samples have been verified with the chain-of-custody documentation, a **field team member** relinquishes custody to SMO or radiation screening laboratory personnel. For shipping of DOT-regulated samples, the field team member will coordinate packaging, labeling, and shipping with BUS-4 (667-4127).

Note: Delivery of samples to the SMO can be made during any workday between the hours of 8:00 a.m. and 12:00 p.m. and 1:00 p.m. and 5:00 p.m. Special arrangements can be made with the SMO coordinator for sample delivery during off hours. Certain chemical analyses may have limited holding times, and field personnel should coordinate with the SMO for delivery of those samples with limited holding times.

6.1.6 The **field team member** will document all comments and any deviations from this procedure in the Field Log Notebook or Daily Activity Log in accordance with ER-QP-5.7, Notebook Documentation for Environmental Restoration Technical Activities.

6.2 Environmental Samples

6.2.1 In general, samples collected in non-laboratory use areas (e.g., wetlands, wells, and soils) are not expected to be contaminated with levels of hazardous or radioactive materials high enough to be considered hazardous by DOT. Unless historical data, knowledge of process, or screening results suggest that samples are DOT-regulated, samples will be transported as environmental samples.

The **field team member** must follow the instructions in Attachment B for packaging, marking and labeling of environmental samples.

6.2.2 Samples taken from inactive septic systems are exempt from all DOT and International Air Transport Authority (IATA) requirements if the sample collector can verify that the samples no longer contain infectious material. When collecting samples from active septic systems or inactive sanitary waste lagoons, the **field team member** should contact BUS-4 (667-4127) for assistance in determining shipping requirements. (See Attachment C for instructions on handling sanitary waste).

6.3 DOT-Regulated Samples

Although the sample media in the ER Project is expected to be soil, water, sediment, or sludge, the ER Project may occasionally have cause to sample pure product waste or media that contains highly concentrated hazardous material. If the amount of the hazardous material in the sample is small, it may be shipped under the DOT limited- or small-quantity exceptions. Small quantities of hazardous material are exempt from the DOT requirements for packaging, shipping papers, labels, and placards for that hazardous material and can be shipped as environmental samples. Refer to the exception for small quantities located in 49 CFR 173.4. DOT-regulated materials may be transported under the limited-quantity exception if that material has an exception noted in column 8A of the Hazardous Materials Table located in 49 CFR 172.101. Actual quantities are given in the reference indicated in Column 8A. The shipment of limited quantities must follow all requirements in the 49 CFR 172.101 reference section. Radioactive samples must be accompanied by the specified information indicated in Section 6.3.2 of this SOP. For assistance, contact BUS-4 (667-4127).

6.3.1 Nonradioactive Samples

6.3.1.1 Samples known or expected to be classified as DOT regulated materials must be transported according to DOT requirements. If it is determined that the samples are DOT-regulated, the **field team member** must contact **BUS-4** (667-4127) who will package, label, and ship the samples in accordance with all applicable DOT regulations.

NOTE: The SMO does not ship DOT-regulated materials. Arrangements must be made with the SMO and BUS-4 to have the samples picked up, packaged, and shipped by BUS-4 personnel. SMO personnel can provide the field team assistance for this process, to help ensure the samples are handled appropriately.

6.3.1.2 Samples taken from sanitary waste in active septic tanks or sewage lagoons can be classified as Diagnostic Specimens, which 49 CFR 173.196 (h)(1) exempts from special handling during ground transportation. However, because these samples may be shipped by air for off-site analysis, the **field team member** must collect them in the proper containers with all the appropriate packaging, per IATA. (See Attachment E for collection and packaging requirements for sanitary waste samples). If the field team member has questions regarding what containers and packaging is appropriate, they can contact the SMO (665-9968) or BUS-4 (667-4127) for further assistance.

6.3.1.3 **CAUTION:** Product nitric acid, which is used as a sample preservative, has restrictive DOT packaging and transportation requirements, with no exceptions allowed. All regulations in 49 CFR 172.101 and 173.158 must be followed when moving any amount of undiluted nitric acid. However, water samples preserved by nitric acid, because of the dilution of the acid (or any other additive) are no longer forbidden according to 49 CFR 172.101 (d)(1) and can be packaged and shipped according to the standard practice for shipping environmental samples.

6.3.1.4 40 CFR 136.3, Table 11, Note 3 also address shipment of samples preserved by DOT-regulated hazardous materials.

6.3.2 Radioactive Samples

6.3.2.1 Most of the samples taken at ER Project sites will have activity levels of 70 Bq/g (2 nCi/g) or less. Because DOT only regulates radioactive material with a specific activity greater than 70 Bq/g, most samples taken may be handled as environmental samples unless otherwise regulated hazards are identified or presumed to exist in the sample.

6.3.2.2 Because the DOT specifies Becquerel amounts, which are not field readings, see Attachment F, the summary table for DOT requirements for radioactive material, which indicates some approximate disentegrations per minute (d/m). An ESH-1-approved **Radiological Control Technician (RCT)** can convert d/m to counts per minute (c/m) for field readings in accordance with ESH-1 procedures. In this way, the **RCT** will be able to determine if a sample is above 70 Bq/g, approximately 4.4×10^3 d/m for the isotope of concern. Samples may also be submitted to the SMO-approved

radiation screening facility for more accurate determinations of radioactivity levels.

6.3.2.3 The Laboratory Radiation Protection Group (ESH-1) has established action levels of radioactivity in the ER HASP to alert the RCT of increased requirements for worker protection. Action Levels I and II, noted in Attachment E, are below the DOT-regulated radioactivity. Even though the ESH-1 action levels of radioactivity are not regulated by DOT, special safety precautions must be taken if the activity at a sample location exceeds an action level. Be sure to follow all requirements in the HASP, the LANL Rad-Con Manual, the SSHASP, the site-specific Radiological Work Permit, or the current ER Project Installation Work Plan, as appropriate.

6.3.2.4 For materials that exceed the minimum 70 Bq/g (2 nCi/g) of activity, the following information applies. Contact BUS-4 (667-4127) for assistance if the ESH-1-approved RCT indicates readings in the following ranges:

- For materials with activities greater than 70 Bq/g (2 nCi/g) but less than Type A quantities, DOT identifies a limited quantity category and provides specifications for excepted packaging. Radioactive materials in the limited-quantity category may be transported with minimum restrictions. See Attachment E for a summary sheet of DOT categories and levels of radioactivity in this category. Limited-quantity shipments must have the following label:

  Note: This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910.

- Limited Quantity shipments are required to have the word “Radioactive” on the outside of each container in the shipment, or on the outside of the shipping container.
- Type A and B quantity samples are not expected in the ER Project. However, the summary sheet indicates the continuum of shipping requirements for all radioactive material. The summary sheet also indicates d/m for some

isotopes that would cause those isotopes to be shipped as Type A material.

6.3.2.5 The **field team member** must inform the SMO and/or the radiation screening laboratory coordinator when levels of radioactivity are in the action-level or limited-quantity ranges. (Refer to Attachment E for activities for these ranges.) The SMO or radiation screening laboratory coordinator will need to make special arrangements for handling radioactive samples in order to comply with radioactive material licenses that limit the amount of source materials stored on site. Notifications will also prevent SMO and radiation screening laboratory personnel from unknowingly receiving a dose of radioactivity and prevent their equipment from becoming contaminated.

6.3.2.6 If 70 Bq/g (2 nCi/g) of activity is exceeded, and a package for transportation must be shipped limited quantity, the **field team member** should contact BUS-4 (667-4127) or the SMO for assistance.

NOTE: The SMO does not ship DOT-regulated materials. The **field team member** must make arrangements with the SMO and BUS-4 to have the samples picked up, packaged, and shipped by BUS-4 personnel. SMO personnel can provide the field team assistance for this process.

7.0 REFERENCES

The following documents have been cited within this procedure.

QP-2.2, Personnel Orientation and Training

QP-4.2, Standard Operating Procedure Development

QP-4.4, Submittal of Records to the Records Processing Facility

QP-5.7, Notebook Documentation for Environmental Restoration Technical Activities

ER-SOP-1.02, Sample Containers and Preservation

ER-SOP-1.04, Sample Control and Field Documentation

ER-SOP-1.06, Management of Environmental Restoration Project Wastes

ER-SOP-1.08, Field Decontamination of Drilling and Sampling Equipment

40 CFR, 1998. Code of Federal Regulations, Title 40, U.S. Environmental Protection Agency, Parts 100-149. July 1, 1999, U.S. Government Printing Office, Washington, D.C.

49 CFR. Code of Federal Regulations, Title 49, U.S. Department of Transportation, Parts 100-199. October 1, 1999. U.S. Government Printing Office, Washington, D.C. 1999

8.0 RECORDS

The **Project Leader** is responsible for ensuring that the following records (processed in accordance with QP-4.4, Submittal of Records to the Records Processing Facility) are submitted to the Records Processing Facility.

8.1 Completed Chain-of-Custody/Request for Analysis Form

8.2 Completed Field Log Notebook or Daily Activity Logs

8.3 Completed Sample Collection Logs

9.0 ATTACHMENTS

The document user may employ documentation formats different from those attached to/named in this procedure—as long as the substituted formats in use provide, as a minimum, the information required in the official forms developed by the procedure.

Attachment A: Equipment and Supplies Checklist

Attachment B: Preparation of Environmental Samples for Transportation and Shipment

Attachment C: Preparation of Sanitary Waste Samples for Transportation and Shipment

Attachment D: DOT Hazardous Material Classification

Attachment E: Range of Material Radioactivities and Corresponding Transportation Requirements

Equipment and Supplies Checklist for Control of Field Samples

_____ coolers
_____ blue Ice, packaged Ice, dry ice, or water frozen in 1L containers,
_____ packing material (bubble pads)
_____ tape
_____ boxes
_____ container for liquids
_____ labels
_____ preservative
_____ absorbent material
_____ resealable (ziplock) bags
_____ sample containers
_____ chain-of-custody tape
_____ chain-of-custody forms
_____ thermometer
_____ sample preservatives
_____ any PPE listed or required in the SSHASP
_____ any additional supplies listed in associated procedures, as needed

PREPARATION OF ENVIRONMENTAL SAMPLES FOR TRANSPORTATION/SHIPMENT

NOTE: For samples from septic tanks and lagoons that contain sanitary waste, see Attachment C for packaging and shipping requirements.

Environmental samples must be prepared for delivery in the following manner:

A. Packaging

Before any samples are placed in their delivery containers, the exterior of the sample containers should be decontaminated, if appropriate, and wiped dry.

1. For purposes of controlling leakage, sample containers can be placed, properly labeled and securely sealed, into a polyethylene sealable bag (e.g., Ziplock bag) and the bag sealed.
2. If there are multiple sample containers, care should be taken to prevent breakage. Styrofoam "peanuts", bubble wrap, or other cushioning material can be used, as appropriate, to prevent multiple samples from being broken during movement.
3. If the FTL deems it necessary for liquid samples, sufficient absorbent material can be placed in the cooler (or other transport container) to absorb all liquid in the event of a sample container breakage.
4. For samples requiring preservation at 4°C ± 2°C, the samples should be placed in a sturdy ice chest with sufficient ice material to keep the samples cold. The presence of ice or frozen Blue Ice in an amount approximately equal to the volume of samples is sufficient indication that the samples are adequately cooled.
5. When wet ice is used, it should be placed in sealed containers, such as doubled Ziplock bags, so water does not fill the cooler as the ice melts.
6. If samples are to be immediately chilled to below 4°C before delivery, they must be totally immersed in a separate cooler containing an ice slush solution that is below 4°C. To ensure this temperature before placing samples in the delivery container, a sample container of the same size filled with distilled water can be checked with a thermometer to determine when the samples have reached the desired temperature. The temperature check must be recorded.
7. Water samples must not be frozen or transported with dry ice as this increases the possibility for container breakage.
8. Water or sludge samples that will be analyzed for volatile organic analysis (VOA) should be wrapped with bubble pads to avoid freezing and bursting the 40-ml VOA vial.
9. Completed original Chain-of-Custody/Request for Analysis forms (ER-SOP-01.04) should be placed in watertight containers, such as a ziplock bag, and placed inside the shipping container.
10. The cooler or other transport container must be completely closed and secured with tape, if necessary. A chain-of-custody seal should be placed over the lid of the container so that tampering would be easily detected.
11. Samples must be transported to the SMO using a government vehicle. It is not permissible to transport samples to the SMO or radiation screening laboratory using personal or company vehicles.

B. Marking/Labeling

DOT placards, marking, or labeling are not required for non-DOT regulated environmental samples that are taken to the RSL or SMO*****. However, per 40 CFR 261.4 (d), all samples must be accompanied by

- The sample collector's name, mailing address, telephone number
- The laboratory's name, mailing address, telephone number
- The quantity of the sample
- The date of shipment
- Description of the sample

Some of the required information is contained on the chain-of-custody form. The first two bulleted items are not on the chain-of-custody form, so a piece of paper containing that information might be preprinted to attach to the chain-of-custody form or otherwise placed with the cooler.

Transport containers (ice chests) will be marked Environmental Samples.

All DOT-regulated samples are shipped by BUS-4 who will ensure that all DOT requirements are met prior to shipping.

PREPARATION OF SANITARY WASTE SAMPLES FOR TRANSPORTATION/SHIPPING

These instructions are for the handling and transportation and shipping of samples from septic tanks and lagoons that contain sanitary waste. Field team members may want to refer to the Proposed Rule for 49 CFR Part 171, et al, Hazardous Materials: Revision to Standards for Infectious Substances and Genetically Modified Micro-Organisms, which proposed changes for the designation and handling of sanitary waste samples.

A. Samples from Inactive Septic Systems and Lagoons

A number of septic systems at the Laboratory have been inactive and have not received sanitary waste in a number of years. If the ER Program is taking samples from these septic systems, the project leader and the field team leader can conclude that the sample media is not infectious using the following prudent and resource conservative philosophy:

- The types of human pathogens found in sanitary waste cannot maintain a viable state because conditions of pH, temperature, oxygen and other gases, etc., are not favorable.
- Without the addition of new waste and new pathogens, the samples are not infectious.

If the project manager and the field team manager decide that samples from inactive sanitary waste systems are not infectious, the decision, with the supporting reasons, should be documented in the Field Log Notebook or Daily Activity Log. These samples can be collected and prepared for transport as soil, sludge, or water samples and designated as environmental samples.

B. Samples from Active Septic Systems and Lagoons

Samples that come from active sanitary systems and are expected to contain human wastes can be designated as diagnostic samples and are excluded from the specific packaging and shipping requirements per 49 CFR 173.196 (h)(1). However, because some ER Program samples must be shipped by air to meet EPA holding-time requirements, collection and preparation of these samples must satisfy IATA requirements.

For ground transportation of these samples, these samples can be packaged and transported as though they were environmental samples. The SMO will be responsible for packaging and shipping the samples, whether by ground or air, to an off-site laboratory. However, if these samples will be shipped by air, certain restrictions will apply.

According to IATA provisions, these shipments can be identified as Diagnostic Specimens “that have a low probability of containing infectious substances.” The project leader or field team leader may determine the following prudent and resource conservative philosophy:

- Even though there may be infectious substances in the sample, the count would be low, and the probability of sudden illness or death occurring from contact with the infectious substance is low.
- If this determination is made, the responsible party may designate the diagnostic specimen as having a low probability of containing infectious substances.

- This designation reduces the testing requirements for the containers and increases the allowed amounts in a shipping package.

If the project leader and field team leader decide that samples from active sanitary waste systems are diagnostic specimens with low probability for causing illness or death, the decision with the supporting reasons should be documented in the Field Log Notebook or Daily Activity Log. If the project leader and field team leader need further guidance regarding the transportation and shipping of samples collected from active sanitary waste systems, they should contact BUS-4 (667-4127) for more information.

1. Containers

   For material designated as diagnostic specimens, the total volume per shipping container cannot exceed 500 ml, and the maximum volume per inner container must not exceed 100 ml. Therefore, when SMO indicates that the samples will be shipped by air, they must be collected in containers that are typically smaller than those used for analyses. The sampling team must coordinate with the SMO to address this issue before taking samples because SMO is responsible for packaging the shipment per IATA 650. The SMO will provide sample containers that meet IATA 650.

2. Warning Labels

   Although DOT does not require placards or labeling, safety of laboratory personnel requires that the samples should be identified as sanitary waste. A label will alert all personnel handling the samples as to the sample's potential hazard. A typical warning label attached to the outside of the transport container might read:

   This package contains samples of sanitary waste. If leakage is noted, take all prudent precautions and notify the sampling team that collected the samples.

   BUS-4 (667-4127) should be contacted if there are any questions or concerns regarding the transportation and shipment of samples collected from active and inactive sanitary waste systems.

DOT HAZARDOUS MATERIAL CLASSIFICATION

(49 CFR 173.2)

The following table is provided to help guide field team members obtain additional regulatory information.

Class No.	Name of Class or Division	49 CFR Definition Reference	49 CFR Label Reference
1	Explosives	173.50	172.411
2	Gases	173.115	172.415, 416 and 417
3	Flammable and combustible liquid	173.120	172.419
4.1	Flammable solid	173.124	172.420
4.2	Spontaneously combustible material	173.124	172.422
4.3	Dangerous when wet material	173.124	172.423
5.1	Oxidizer	173.127	172.426
5.2	Organic peroxide	173.128	172.427
6	Poisonous and infectious materials	173.132 and 134	172.430, 431 and 432
7	Radioactive Material	173.403	172.421 through 425
8	Corrosives	173.136	172.442
9	Other Regulated Material	173.140	172.446

1.

12. Range of Material Radioactivity's and Corresponding Transportation Requirements

DOT Definition of "Radioactive Material"	Not Regulated in Transport	Limited Quantities	Type A Quantity*	Type B Quantity*
70 Bq/g (0.002 μ Ci/g) ~4.4 x 10^3 d/m ^{226}RA, 1 x 10^8 d/m ^{227}Ra, 6 x 10^6 d/m ^{230}Th, 4 x 10^8 d/m ^{235}U, 4 x 10^8 d/m ^{238}Pu, 6 x 10^6 d/m ^{239}Pu, 4 x 10^6 d/m ^{239}Pu, 4 x 10^6 d/m	13. Laboratory ESH-1 Action Level I** Above background but, < 500 cpm/probe α and < 5000 cpm/probe β/γ 14. <u>Laboratory ESH-1 Action Level II **</u> ≥ 500 cpm/probeα and ≥ 5000 cpm/probe β/γ and ≥ 5 mR/hr	See 49 CFR 173.21 Contact BUS-4 (667-4127) 15. Packaging: strong, tight, leak proof, and with external rad ≤ 0.5 mrem. 16. Outside of package marked "Radioactive" if there is no inner packaging, the outside of the packaging itself is marked "Radioactive." Excepted from: • Shipping papers and Certification • Specification packaging • Labeling • Marking	See 49 CFR 173.431	17. See 49 CFR 173.431

18. * Not expected in the ER Project

19. ** Follow requirements cited in 49 CFR 173 Subpart I. For others cite the Site specific Health and Safety Plan (SSHASP)

ER-SOP-1.03

Los Alamos
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